Stories from the field

Reducing vulnerability among pastoralists in Northern Kenya

The devastating drought that gripped much of East Africa in 2009 was one of the worst in living memory. But in the arid and semi-arid lands of Northern Kenya, drought is no stranger. Since 1993, Kenya has declared six national disasters because of drought.

Among pastoralists, mobility has long been key to survival, as communities followed their herds in search of greener pastures. But today, the movement of these traditionally nomadic peoples is severely hindered by agricultural settlement, conflict over grazing lands and water, and land degradation, even as climate change increases the stress on their herds. Research on climate-related vulnerability among pastoralist communities in Mandera and Turkana in Northern Kenya, led by the Kenyan NGO Practical Action, is shedding light on the biophysical impacts of drought, and its social and economic consequences in these remote areas.

Climate data confirms pastoral livelihoods are at risk from rising surface temperatures, more intense rainfall and more frequent droughts. Figure 2 shows a slight decline in rainfall at Lodwar, Turkana in north western Kenya, where mean rainfall decreased by 13 mm between the first 23 years of record (1950-1973) and the last 34 years (1974-2008).[1] More importantly, the frequency and severity of droughts have increased in recent decades, with episodes of moderate to severe drought occurring more frequently since the 1980s.

Turkana women fetching water for crops.
Photo: PANOS/Sven Torfinn

[1] Rainfall and drought data from "An assessment of drought induced vulnerability of the Turkana pastoralist community livelihoods in northern Kenya and its ability to cope with climate change", Ogindo, H. O., Otieno, A. W., et al. June 2009.

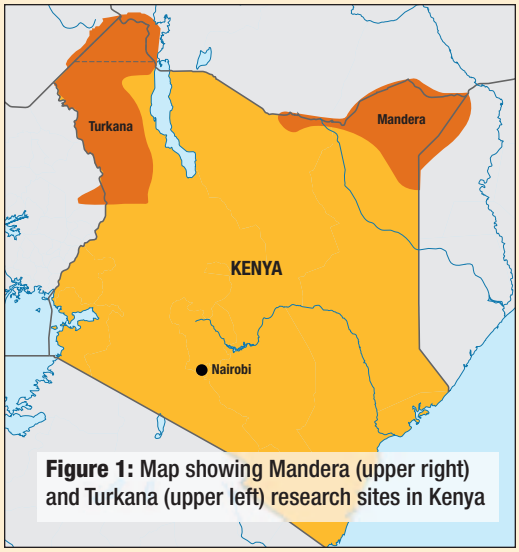


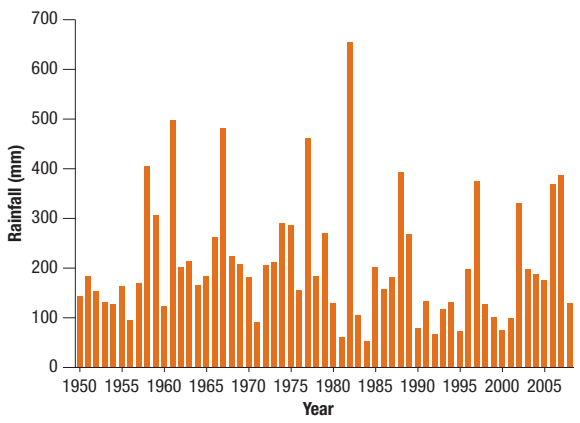
Figure 1: Map showing Mandera (upper right) and Turkana (upper left) research sites in Kenya

Table 1: Drought magnitude in Lodwar, Turkana, 1950 – 2008

Years	Magnitude*
1950	-0.43
1952–1957	-2.84
1960	-0.65
1964	-0.18
1971	-1.09
1976	-0.27
1980–1984	-6.25
1986–1987	-0.28
1990–1995	-6.00
1999–2001	-3.31
2005	-0.06
2008	-0.59

*Drought magnitude is the cumulative sum of the consecutive negative Standard Precipitation Index values for a number of years. SPI values of -2.0 and less are extreme. Values of -1.0 to -1.5 indicate moderate drought.

Figure 2: *Annual rainfall variation for the Lodwar Meteorological Station, Turkana.* This is the only station serving the greater Turkana district that has long running historical data.



These droughts are occurring at the same time as rainfall has become erratic and sometimes torrential. The net effect has been to reduce the vegetative cover that feeds livestock and protects soils against erosion. And conflict is increasing due to competition over scarce water and pastures.

Rainfall data and household surveys confirm droughts are more frequent and severe.

Researchers conducted surveys and focus group discussions to understand how people have experienced droughts and other extreme events, how they are affected by them, how cultural norms and gender roles may make them more or less vulnerable, and how their means of coping have changed over time.

Faces behind the research

Ayub Macharia Ndaruga
Director, Environmental Education, Information and Public Participation
Kenya's National Environment Management Authority

Kenya's National Environment Management Authority (NEMA) plays a key role in shaping the country's responses to climate change. The authority supervises and coordinates government policies on the environment and manages district and provincial environment management committees, which are increasingly confronted with the consequences of climate change. As a senior official with NEMA, Dr. Ayub Macharia Ndaruga focuses on connecting research on pastoralists to policy processes that can make a difference for local people.

Structured interviews were carried out among 423 households in two sites of Mandera central district (Rhamu and Khalilio) and 652 households in two sites of Turkana central and west districts (Namuruputh and Katilu). An additional 270 households were interviewed in Kapua, Turkana central, due to its extremely arid environment. Focus groups involving representatives from local communities, government departments and civil society groups helped in analyzing the data.

Findings confirmed that people feel the changes underway keenly, and see direct impacts on the resources they depend on for their livelihoods. Over 80% of respondents noted shorter time intervals between droughts in both Mandera and Turkana. Pastures are not able to regenerate and rangelands remain bare even when rainfall is recorded. In Turkana, 93% cited conflict over land and livestock as factors restricting herd movement and contributing to further overgrazing and destruction of vegetative cover.

Mandera goat herders water their flock along the Daua river on the border between Kenya and Ethiopia. *Photo courtesy of A. Macharia, Kenya's National Environment Management Authority*

Macharia sees the needs of pastoralists as urgent, because they have suffered the most from recent droughts and because livestock herding is an important livelihood across 80% of Kenya. "In times of drought they are commonly shown on the media, afflicted by hunger, starvation, emaciation…cut off from the rest of the country, and devastated by livestock diseases and deaths."

In spite of the many barriers facing pastoralists – particularly remoteness and illiteracy - Macharia sees communities responding to climate variability with some significant innovations. "They have come up with many alternative livelihood options such as growing maize and sorghum for food, diversifying their herds, growing aloe as a cash crop, collecting and trading tree products such as gums and resins, and producing charcoal for fuel."

But he hopes to see more institutional support to assist such local efforts. "The institutions expected to guide the country on adaptation strategies do not give this issue the priority it deserves. Government officers at the national and local levels have not mainstreamed climate change in their programs and operations."

"This project was crucial to NEMA and myself," says Macharia, "since it helped us explore climate issues in a bigger way. The findings of the study could be integrated in NEMA's future planning and programs."

The project team links NEMA with the NGO Practical Action and with researchers at Kenyatta and Maseno universities, Food Link Resources Institute, and the Center for Research and Technology Development.

Researchers took part in CCAA training on outcome mapping, gender analysis and the science of climate change. Dr. Macharia believes these skills and approaches are useful to other areas of NEMA's work. "We have extended the use of outcome mapping to implementing a national program of education for sustainable development. We have shared this approach with other government ministries and helped them to focus more on outcomes than just on outputs."

"The use of participatory action research has made sure that research was not done just for the sake of reports and publications but to change community behaviour and achieve tangible outcomes."

A lack of access to markets for livestock and crop produce, limited access to health centres, and poor road infrastructure increase the vulnerability of pastoralists. Less than one-fifth of people in Mandera have health facilities within one hour's reach, and more than half must walk for over six hours to reach the nearest market for their livestock or crops.

In Turkana, 93% cited conflict over land and livestock.

They also do not have access to reliable weather and seasonal forecasting. In Turkana, 96% of those surveyed depend on elders and "diviners" (known locally as emorons) for information on weather and seasonal outlooks. In Mandera, close to a third rely on elders, relatives or neighbours. Over half rely on radio, but the most popular radio broadcaster, BBC, does not carry local weather information.

Research is also exploring how men and women are affected differently by climate stressors, and how their coping strategies may differ. Women often do not have a voice in decisions that affect the use of resources that families depend on in times of stress, while men are most directly at risk of conflict over depleted water and grazing lands.

Table 2: Observed gender differences in Turkana

Factors contributing to climate-related vulnerability	
Men	**Women**
• More directly at risk from conflict over water and pasture • Elderly men left alone when families form households	• Lack decision-making power • Responsible for care of the sick and the young • Eat last in times of drought • Lower earning power

Women in Turkana drawing well water. Though they play a major role in family health and well-being, women have little voice in decisions about the use of vital resources. *Photo courtesy of Practical Action*

Project findings will strengthen initiatives to assist climate change adaptation by pastoralists at the district and national level. Mandera and Turkana members of the district steering groups and the district environmental committees (DECs) will use the study's results to train pastoralists in areas such as management strategies for pasture and water and planning of herd sizes.

Isolation increases the vulnerability of pastoralists. They have poor roads, few health services, and limited access to markets.

DEC officers have also used the project findings at regional consultation meetings on the development of the Kenyan government's climate change response strategy. As project activities conclude in 2010, researchers hope to see results reflected in policies that recognize the unique challenges faced by pastoralists.

The project "Enhancing Adaptation to Climate Change among Pastoralists in Northern Kenya" illustrates progress in CCAA outcome area 1: **Research teams are better able to address climate-related vulnerabilities and to evaluate and develop adaptation options.**

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